

MISSOURI. Conservationist

VOLUME 78 ISSUE 1, JANUARY 2017 • SERVING NATURE & YOU



Resolving to Get Outdoors This Year

Happy New Year to all outdoor enthusiasts!

The start of a new year offers the opportunity to reflect back on the successes and challenges of the previous year and to set goals — or resolutions — for the year ahead.

In this issue of *Missouri Conservationist*, we take a look back at last year in Fiscal Year 2016 Annual Review (Page 9). It highlights the issues and activities that made the past year the challenging and successful year it was, including wildlife issues, such as chronic wasting disease and feral hogs; outreach



programs, including Discover Nature — Fishing, Missourians For Monarchs and the Great Missouri Birding Trail; cutting edge research and restoration efforts, including projects benefiting creatures ranging from the American burying beetle to elk; and much more.

Looking forward, the Department continues to charge ahead with its mission of protecting Missouri's fish, forests, and wildlife, and to continue providing the opportunity for Missourians to use, enjoy, and learn about these resources. I hope in pursuit of our resolutions, we can help you with yours as well.

If your resolution involves getting more active, consider taking advantage of the trails at your nearby conservation area or nature center. Did you know most Missourians are within a 30-minute drive of a conservation area? So most of us are without excuse! An hour on one of our trails will provide good exercise, fresh air, the beauty of nature, and a level of mental relaxation not found on a treadmill.

For many, spending time with family and friends is another important goal. The Department offers a variety of outdoors skills courses and events throughout the state (find one near you online at short.mdc.mo.gov/ZJC). All of our facilities and classes are free so you can enjoy that time with family while addressing another common resolution — spending less money.

It's an exciting new year. I hope you will take advantage of all the Missouri outdoors has to offer. Hope to see you out there — on the trail.

A handwritten signature in black ink that reads "Sara Parker Pauley".

—Sara Parker Pauley, director

FEATURES

9 **Annual Review**

Fiscal Year July 1, 2015–June 30, 2016

25 **There's a Plant for That**

by Gladys J. Richter

Match your toughest landscaping problems with the native plants programmed to handle them

Cover: Mill Mountain Natural Area in Shannon County. Photograph by David Stonner.

📷 16–35mm lens • f/22 • 1/2 sec • ISO 100

DEPARTMENTS

2 **Letters**

4 **Hunting & Fishing Calendar**

4 **Agent Notes**

5 **Ask MDC**

6 **News & Events**

30 **Plants & Animals**

32 **Places to Go**

33 **Discover Nature**

WHAT IS IT?

Our photographers have been busy exploring the intricacies of outdoor Missouri. See if you can guess this month's natural wonder. The answer is revealed on Page 7.



LAND MANAGEMENT

I recently had the opportunity to spend the afternoon on our family property with Steve Hoel, the private land conservationist for Johnson and Lafayette counties. His knowledge and insight into property management was both helpful and educational. He identified the areas of the property that could be improved with the removal of nonnative invasive species (sericea lespedezea and autumn olive) and the areas of the property that are developing as nature intends. I now have a much better idea of how to manage the land responsibly. I would encourage any property owner to contact their county's private land conservationist and schedule a walk-through of their property. Thank you

Missouri Department of Conservation and Mr. Hoel for this valuable service.

Jason Rinck, Kansas City

MASTER NATURALIST

I was delighted to see the article about the Missouri Master Naturalist program in the October *Conservationist* [A Lasting Legacy; Page 17]. It is inspiring to read about the passion of the volunteers and the contributions their work is making to Missouri's natural resources. Kudos to the MDC and Extension staff who support the volunteers, and to Syd Hime, volunteer and interpretive program coordinator, for her leadership. It is gratifying to see the vision for Master Naturalists in action.

Ginny Wallace, Jefferson City

CWD SAMPLING

Huge shout-out to the MDC staff in Lancaster this weekend [November 12–13]. They worked all day long. Very professional and a fun group of guys and gals. Thank you all.

Ronda Beeler Drury, via Facebook

Pass my thanks and, I'm sure, the gratitude of every hunter out there to the men and women who worked so many hours to collect samples. I'm sure most of them would have rather been sitting in a deer stand than working on opening weekend. Thank you all for making up what I brag on to be the best Conservation Department in the country.

Charles Brennell and family, via email

I watched two different stations and thought they both did a great job of collecting samples. They were very respectful and polite to everyone. Two thumbs up to those guys!

Allen Gillispie, via Facebook

Shout-out to the crew in Versailles! Well done! Professionally staffed! Appreciate that the Department didn't try to cut corners and had one or two lines. That's how you show you care about hunters.

Jerry Rosslan, via Facebook

BLUE-WINGED WARBLER

My dad was a big fan of the *Conservationist*. Over the years, he gave them to me when he had finished reading them. I have become a fan as well. In the November 2016 issue, you have a picture of a blue-winged warbler [Forest and Woodland Conservation; Page 14]. On opening day of deer season, I saw a pair flitting around not more than 10 feet from me in my stand. It was neat to make the connection. Thanks for your work!

Darryl Griggs, Sikeston

NATURE UNLEASHED

Watched your videos about stocking the lakes and read your article on the quail population in science class today. Monett Intermediate 5th grade is loving the *Nature Unleashed* book and exploring this page [short.mdc.mo.gov/ZZ4] to help us learn more about ecosystems and the food chain. Thanks guys!

Elizabeth Richter Boxell, via Facebook



Reader Photo

A STROLL THROUGH SNOW

Alma Curry captured this photo of an opossum in the snow near her home in Sikeston. Curry said the opossum struggled at times to get through the deep snow that had drifted along the fence line. "I find photography of wildlife a very relaxing and fun hobby," said Curry. "We live in the city, but have made our yard a sanctuary for birds and butterflies. My husband and I take many photos sitting in our yard, but also spend a lot of time in Missouri conservation areas and lakes around our area."



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Address: PO Box 180,
Jefferson City 65102-0180

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Southeast/Cape Girardeau: 573-290-5730

Central/Columbia: 573-815-7900

Kansas City: 816-622-0900

Northeast/Kirksville: 660-785-2420

Southwest/Springfield: 417-895-6880

Northwest/St. Joseph: 816-271-3100

St. Louis: 636-441-4554

Ozark/West Plains: 417-256-7161

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READER PHOTO SUBMISSIONS

Flickr: [flickr.com/groups/mdc-readerphotos-2017](https://www.flickr.com/groups/mdc-readerphotos-2017/)

Email: Readerphoto@mdc.mo.gov

Address: Missouri Conservationist, Reader Photo,
PO Box 180, Jefferson City 65102-0180

MDC Online

Discover more about nature and the outdoors through these sites.

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Flickr: [flickr.com/photos/mdc_online](https://www.flickr.com/photos/mdc_online)

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Missouri Department of Conservation: mdc.mo.gov

Nature Shop: mdcnatureshop.com

Twitter: twitter.com/MDC_Online and [Nature_Videos](https://twitter.com/Nature_Videos)

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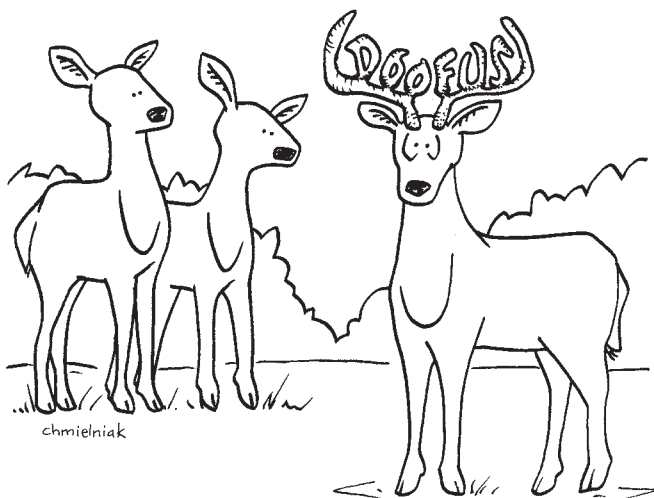
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Equal opportunity to participate in and benefit from programs of the Missouri Department of Conservation is available to all individuals without regard to their race, color, national origin, sex, age, or disability. Questions should be directed to the Department of Conservation, PO Box 180, Jefferson City, MO 65102, 573-751-4115 (voice) or 800-735-2966 (TTY), or to the U.S. Fish and Wildlife Service Division of Federal Assistance, 4401 N. Fairfax Drive, Mail Stop: MBSP-4020, Arlington, VA 22203.

Printed with soy ink





After a dismal breeding season,
Lester waits anxiously for his antlers to shed.

Agent Notes

New Year's Resolutions

LOVE THEM OR hate them, at some point most of us have tried and failed at keeping our New Year's resolutions. Resolutions may include better health, spending more time with family and friends, learning something new, or reducing stress. Believe it or not, the Missouri Department of Conservation can help you achieve these goals.



No matter the weather, no matter the season, the Missouri Department of Conservation manages hundreds of conservation areas, nature centers, and shooting ranges across the state for people to visit and explore. Some areas may include miles of hiking trails or primitive camping opportunities, while other areas may provide excellent hunting and fishing or wildlife viewing opportunities. Some facilities include a variety of indoor interactive displays and exhibits. We also offer many educational and outdoor skills classes.

So this year, get up, get out, and spend the day fishing with family, learning Dutch-oven cooking with your friends, improving your shooting skills on a trap range, or taking a walk along an interpretive trail. By regularly visiting our conservation areas, maybe this will be the year you achieve your New Year's resolutions. To find an area near you, visit mdc.mo.gov/atlas.

Kevin Zielke is the conservation agent for Greene County. If you would like to contact the agent for your county, phone your regional conservation office listed on Page 3.

HUNTING & FISHING CALENDAR

FISHING	OPEN	CLOSE
Black Bass		
Impounded waters and most streams north of the Missouri River	All year	None
Most streams south of the Missouri River	05/28/16	02/28/17

Nongame Fish Giggling		
Streams and Impounded Waters		
sunrise to midnight	09/15/16	01/31/17
Trout Parks		
Catch-and-Release	11/11/16	02/13/17

HUNTING	OPEN	CLOSE
Coyote (restrictions apply during April, spring turkey season, and firearms deer season)	All year	None

Deer		
Archery	11/23/16	01/15/17
Firearms		
Alternative Methods Portion	12/24/16	01/03/17
Pheasant		
Regular	11/01/16	01/15/17
Quail		
Regular	11/01/16	01/15/17
Rabbit	10/01/16	02/15/17
Squirrel	05/28/16	02/15/17
Turkey		
Archery	11/23/16	01/15/17
Waterfowl	see the <i>Waterfowl Hunting Digest</i> or short.mdc.mo.gov/ZZx	

TRAPPING	OPEN	CLOSE
Beaver and Nutria	11/15/16	03/31/17
Other Furbearers	11/15/16	01/31/17
Otters and Muskrats	11/15/16	02/20/17
Rabbits	11/15/16	01/31/17

For complete information about seasons, limits, methods, and restrictions, consult the *Wildlife Code of Missouri* and the current summaries of *Missouri Hunting and Trapping Regulations* and *Missouri Fishing Regulations*, *The Spring Turkey Hunting Regulations and Information*, the *Fall Deer & Turkey Hunting Regulations and Information*, the *Waterfowl Hunting Digest*, and the *Migratory Bird Hunting Digest*. For more information, visit short.mdc.mo.gov/ZZf or permit vendors.

Operation Game Thief

Help put game thieves out of business. If you see a possible violation in progress, call your county conservation agent immediately or dial the toll-free number below:

1-800-392-1111

All information is kept in strict confidence. Desirable information includes names of violators, vehicle description and license number, as well as the violation location.

Ask MDC

Address: PO Box 180, Jefferson City, MO 65102-0180
Phone: 573-522-4115, ext. 3848 **Email:** AskMDC@mdc.mo.gov



Ozark witch hazel

What is this?

This beautiful blossom, known as Ozark witch hazel (*Hamamelis vernalis*), is one of spring's earliest signs.

No taller than 9 feet, typically, this shrub occurs naturally in gravel and dry streambeds and at the bases of rocky slopes along streams in southern Missouri. It's also widely cultivated because of its amazing ability to bloom as early as January. Even as snow still clings to the landscape, the branches of this shrub erupt in fragrant, yellow to dark-red blossoms, which sometimes cluster together and other times spring forth solitarily.

Ozark witch hazel differs from its closely related relative, eastern witch

hazel (*H. virginiana*), which produces flowers in late autumn to early winter. Both species are used to make witch hazel extract, an ingredient prized for its astringent and anti-inflammatory properties. Deer also like to eat the shoots and leaves.

We have a woodpile that we need to tidy up, but I am concerned about uncovering a snake. Are we safe to clean it up in January?

It's unlikely a snake would overwinter in a woodpile, since such an above-ground hideaway offers only minimal protection

from the cold. If you do find the rare hibernating snake, it's unlikely to move fast, if at all, due to January's frigid temperatures. Finally, most snakes in Missouri aren't venomous.

Snakes are ectothermic, or "cold-blooded." They use their surroundings — sun, rocky crevices, water, and shade — to maintain stable body temperatures. Going underground in the winter doesn't mean they're inactive or asleep like some mammals. Technically, reptiles do not hibernate. Instead, they undergo a simpler process called brumation. Unlike hibernation, which involves several metabolic changes over several weeks, overwintering reptiles raise or lower their activity in response to changes in their surroundings.

We have a pair of nesting bald eagles behind our house. They have wintered here since 2013. They usually come in early fall and leave in late spring. Last summer they didn't leave. Why didn't they go?

It is not unusual for bald eagles, especially mature adults, to remain in the area year-round. This decision is largely dependent on age, weather conditions, and food availability.

If weather conditions are amenable, this pair of mature adult eagles may remain throughout the winter to defend their nesting site. However, if conditions change, they may disperse farther south and hopefully return once again in the spring to nest.

Immature eagles — younger than 4 years old — are more nomadic and will migrate and disperse more often than adults, since they don't have a nesting site to defend.



Hackberry

Buy Native Trees and Shrubs from State Forest Nursery

Native trees and shrubs can help improve wild-life habitat and soil and water conservation, while also improving the appearance and value of private property. The Missouri Department of Conservation's George O. White State Forest Nursery offers a variety of low-cost native tree and shrub seedlings for reforestation, wind-breaks, erosion control, wildlife food and cover, and other purposes.

The State Forest Nursery provides mainly 1-year-old bare-root seedlings with sizes varying by species. Seedling varieties include pine, bald cypress, cottonwood, black walnut, hickory, oak, persimmon, birch, maple, willow, sycamore, blackberry, buttonbush, holly, dogwood, hazelnut, redbud, spicebush, sumac, wild plum, and others.

Seedlings are available in bundles of 10 or 25 per species. Prices range from 16–80 cents per seedling. Sales tax of 6.1 percent will be added to orders unless tax exempt. There is an \$8 handling charge for each order. Receive a 15 percent discount up to \$20 off seedling orders with a Heritage Card or Conservation ID Number.

Orders are being accepted now through April 15. Supplies are limited, so order early. Orders will be shipped or can be picked up at the State Forest Nursery near Licking from February through May.

Find images and information on available items, along with ordering instructions, in the Department's *2016–2017 Seedling Order Form*, available at Department regional offices and nature centers, online at mdc.mo.gov/seedlings, or by contacting the State Forest Nursery at 573-674-3229 or StateForestNursery@mdc.mo.gov.



Tour Your State Forest Nursery

Curious about how the Conservation Department's State Forest Nursery operates? Department staff will offer behind-the-scenes public tours this spring. Tours will showcase how the nursery grows, stores, and ships almost 3 million seedlings each year. The open house is scheduled for Saturday, April 1, from 9 a.m. to 2 p.m. To reserve a spot on the tour, call 573-674-3229, ext. 0.

Give the Gift of Christmas Trees Back to Nature

A Christmas tree's work need not be done when the holidays are over. Recycle live evergreens as fish habitat, plant protection, or backyard wildlife cover.

Place a live Christmas tree at the bottom of a stream or pond to give fish a place to rest, nest, and escape predators. Multiple live trees make the best cover so work with friends, family, and neighbors to combine efforts. Anchor the trees with concrete blocks and sink them at a depth of about 8 feet with the trees placed in a row.

Cut branches placed over plants can provide a bit of insulation during the winter and add organic matter as the needles fall.

A cut tree can also offer a bounty of gifts to wildlife for the coming year. Just set it out in the yard and it becomes cover for birds and small mammals. Or set it up and decorate it with peanut butter-covered pinecones, fruit slices, or suet baskets to help provide food for birds.

Winter Trout Harvest Begins Feb. 1

Conservation Department staff stocked 73,000 rainbow trout in 32 urban-area lakes around the state for winter trout fishing beginning last November. Many of these areas allow anglers to harvest trout as soon as they are stocked, while other areas are catch-and-release until Feb. 1. Find locations at short.mdc.mo.gov/Zo6.

Beginning Feb. 1, all of the urban-area lakes allow the harvest of trout. The daily limit at these locations is four trout with no length limit. All Missouri residents older than age 15 and younger than age 65 must have a fishing permit. All non-residents over age 15 must have a fishing permit. To keep trout, all anglers regardless of age must have a Missouri trout permit.



Get Your 2017 Permits

Many hunting and fishing permits expire at the end of February, including 2016 permits for small game, fishing, trout fishing, and combination hunting and fishing permits.

Buy Missouri hunting and fishing permits from one of many vendors around the state, online at mdc.mo.gov/buypermits, or through the Conservation Department's free mobile apps, MO Hunting and MO Fishing, available for download through Google Play for Android devices or the App Store for Apple devices.

Save time by buying permits for yourself, family, and friends in a single transaction. Select the "Additional Customer" option during your permit purchase.

Commercial permits and lifetime permits can be purchased only through the Department's Permit Services Unit by calling 573-751-4115.

WHAT IS IT?

American Bison

Bos bison

Extirpated from Missouri, bison were reintroduced to Prairie State Park in Barton County and The Nature Conservancy's Dunn Ranch in Harrison County. The small herd of about 100 bison at Prairie State Park is considered wild because they reproduce naturally and graze freely. Bison are the largest mammal that still survives in North America, weighing between 900 and 2,200 pounds. Bison have a dark brown, shaggy coat. Both males and females have short, upcurved horns. Juveniles are lighter in color. Bison graze on grasses, sedges, and other plants. Because their herds can completely graze an area quickly, they migrate constantly. Mating occurs in late summer, and one calf is born the following spring. Calves nurse for a year, becoming mature at age 3. At this time, males leave their mothers and live alone or join a bachelor herd. Upon breeding season, herds of males and females approach each other again.

—photograph by Noppadol Paothong



Discover Nature at Eagle Days

Discover nature with the Missouri Department of Conservation at Eagle Days events around the state, or enjoy eagle viewing on your own. Eagle Days events for January and February are listed below. They include live captive-eagle programs, exhibits, activities, videos, and guides with spotting scopes. Be sure to dress for winter weather and don't forget cameras and binoculars.

Kansas City: Jan. 7 from 9 a.m. to 3:30 p.m.

and Jan. 8 from 10:30 a.m. to 3:30 p.m. at Smithville Lake Paradise Pointe Golf Course Clubhouse north of Kansas City. Call 816-532-0174 for more information.

St. Louis: Jan. 14 and 15 from 9 a.m. to 3 p.m. at the Old Chain of Rocks Bridge south of I-270 off Riverview Drive. Call 314-877-6014 for more information.

Springfield: Jan. 21 from 9 a.m. to 4 p.m. and Jan. 22 from 12:30 to 4:30 p.m. at the Springfield Conservation Nature Center with viewing opportunities at the nearby Lake Springfield Boathouse and Marina. Call 417-888-4237 for more information.

Jefferson City: Jan. 28 from 10 a.m. to 3 p.m. at Runge Conservation Nature Center with wild eagle viewing at the nearby Marion Access. Call 573-526-5544 for more information.

Clarksville: Jan. 28 from 9 a.m. to 4 p.m. and Jan. 29 from 10 a.m. to 3 p.m. at Lock and Dam 24 and Apple Shed Theater. Call 660-785-2420 for more information.

Puxico: Feb. 4 from 9 a.m. to 4 p.m. at Mingo National Wildlife Refuge near Puxico. Call 573-222-3589 for more information.



For more information, visit mdc.mo.gov/EagleDays.

DID YOU KNOW?

We help people discover nature and conserve it, too.

Lots of Volunteer Opportunities Near You

If you've resolved to do more for conservation in 2017, become a conservation volunteer. The Missouri Department of Conservation needs skilled outdoor enthusiasts to lead naturalist programs, teach hunter education, serve at shooting ranges, teach fishing skills, and help deliver conservation programs statewide. Call your regional Department office (find phone numbers on Page 3) for more information about volunteer opportunities near you.

» **If you enjoy teaching others** about the natural world, consider volunteering at a conservation nature center or interpretive site. Volunteers work closely with Department staff to provide a fun learning experience for visitors. Volunteers can help plan interpretive programs, design exhibits, greet visitors, lead hikes, and maintain trails.

» **Volunteers at shooting ranges and outdoor education centers** provide a safe and educational experience for hunters to improve their skills. They also assist with outdoor skills education programs, including firearm instruction, trapping and youth hunting clinics, and archery.

» **Hunter education volunteer instructors** and Department staff provide hunter education classes statewide. The hunter safety course teaches students how firearms operate, safe hunting practices, ethics, and responsibilities. This education program is one reason Missouri is a national leader in hunter recruitment.

» **Fishing education volunteer instructors** help beginning anglers gain the skills and confidence to go fishing on their own. The fishing education course covers equipment, casting, lures, knot tying, hook baiting, fish identification and handling, and fishing regulations.

» **Your favorite conservation area** may have volunteer opportunities. Projects include tree planting, habitat restoration, species monitoring, wildflower seed collection, and trail building.

Find more volunteer opportunities at short.mdc.mo.gov/ZJu.

Can't make an Eagle Days event? Other hot spots for winter eagle viewing include:

Lake of the Ozarks at **Bagnell Dam Access**, east of Bagnell

Eagle Bluffs Conservation Area

on Route K, southwest of Columbia

Lock & Dam 20 at Canton

Lock & Dam 24 at Clarksville

Lock & Dam 25, east of Winfield

Moses Eagle Park at Stella

Riverlands Migratory Bird Sanctuary, east of West Alton

Schell-Osage Conservation Area, north of El Dorado Springs

Squaw Creek National Wildlife Refuge, south of Mound City

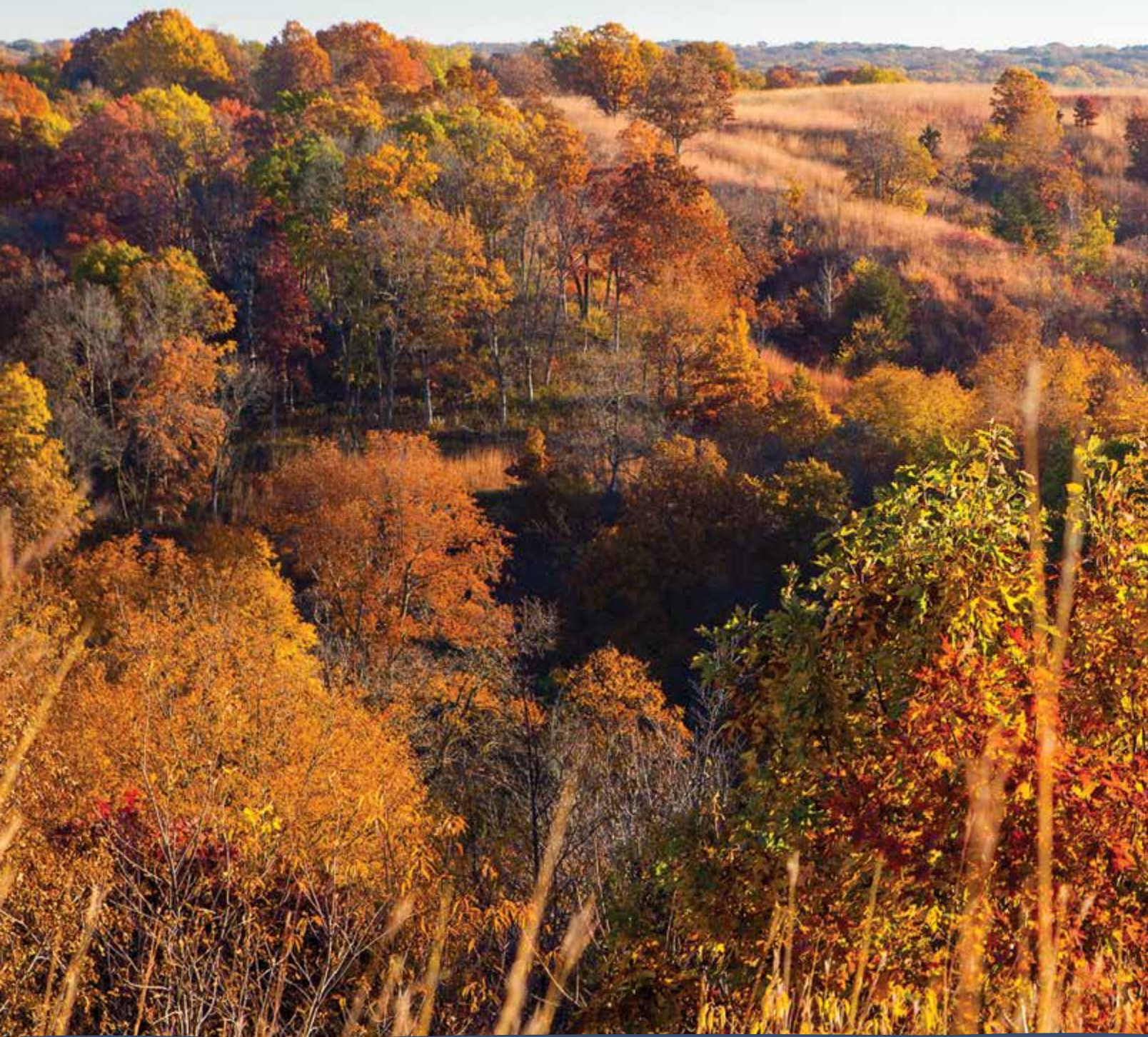
Swan Lake National Wildlife Refuge, south of Sumner

Table Rock Lake, southwest of Branson
Truman Reservoir, west of Warsaw



Annual Review

Fiscal Year July 1, 2015-June 30, 2016



Union Ridge Conservation Area

PHOTOGRAPH BY DAVID STONNER

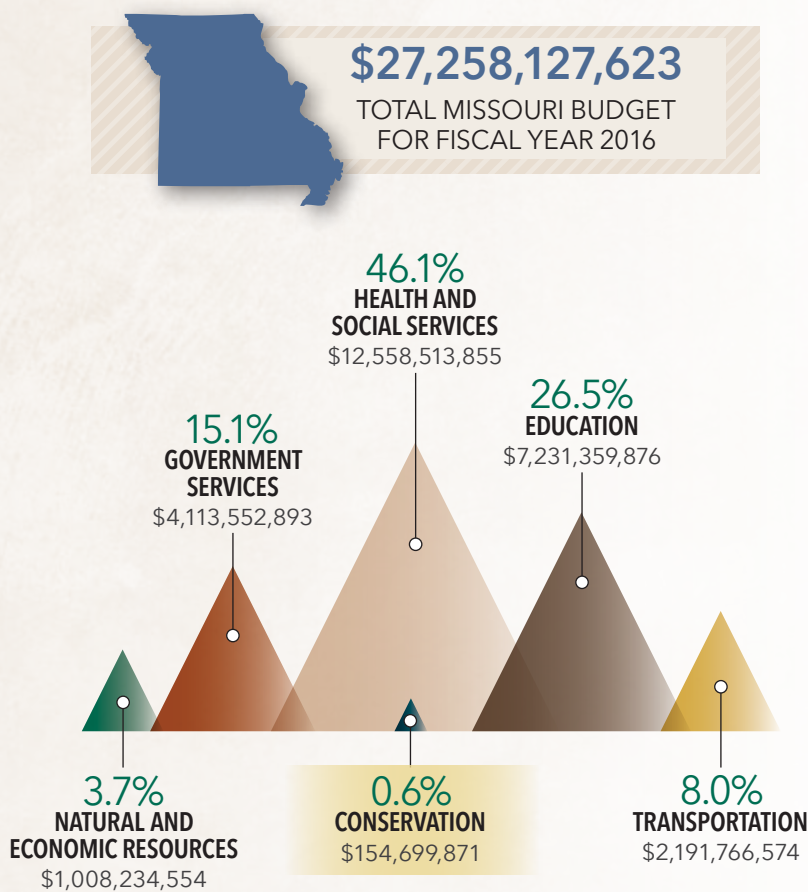
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MOST PEOPLE DON'T GET EXCITED by the term "annual review." Packed with numbers and statistics, it's easy to flip past the pages for a more interesting story. We ask you to reconsider. The following pages are chock-full of conservation success stories, some even entertaining — virgin snake birth, tagging catfish, black bears — highlighting the Department's key accomplishments from July 1, 2015, through June 30, 2016.

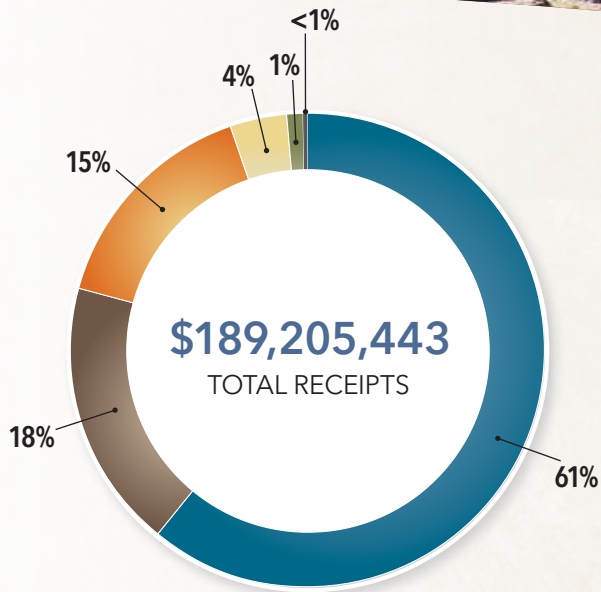
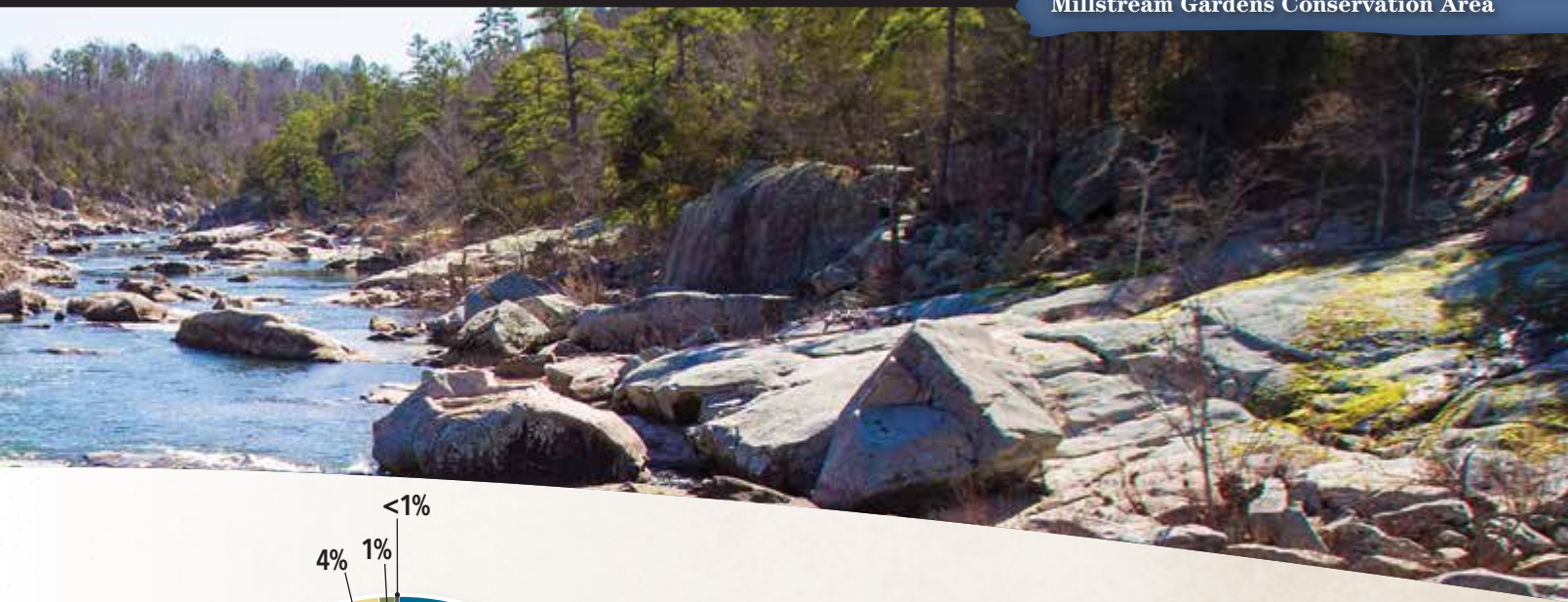
More importantly, these success stories are made possible by you. Missourians care deeply about conservation, and they dedicate dollars to ensure a conservation legacy for future generations. The Department works diligently to carry out our mission of protecting fish, forests, and wildlife in the state and to help people discover nature. Thank you for partnering with us year after year to achieve that mission. Without you, these pages wouldn't be as colorful or our conservation future so bright.

Missouri State Budget

The Conservation Department represents less than 1 percent of the total state budget and **receives no state general revenue**.



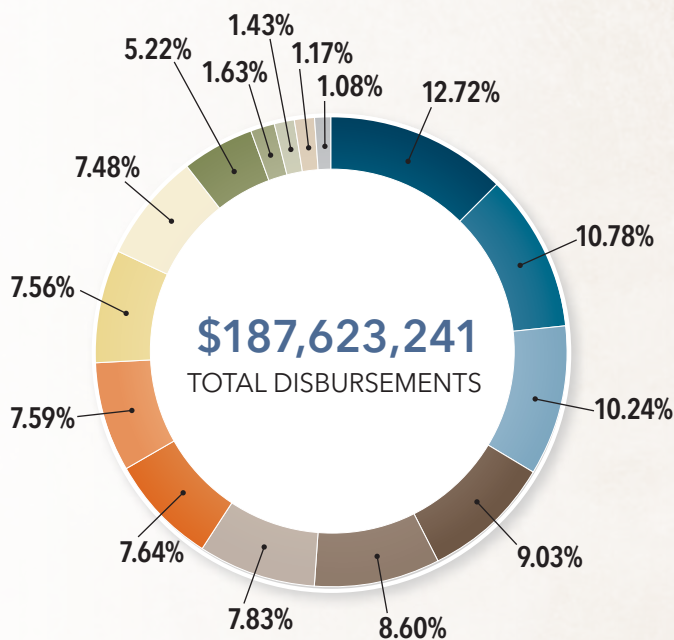
SOURCE: MISSOURI OFFICE OF ADMINISTRATION



Receipts

The Department gets the majority of its funding through the **conservation sales tax**. For every \$8 spent on taxable items, one penny goes to conservation.

Conservation Sales Tax	\$115,429,774
Permit Sales	\$34,636,567
Federal Reimbursements	\$29,268,408
Sales and Rentals	\$7,453,396
Other Sources	\$2,043,390
Interest	\$373,908



Disbursements

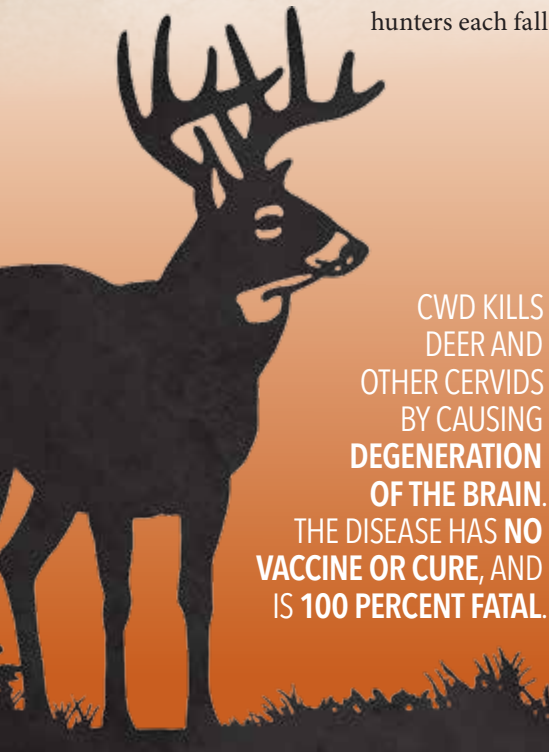
Funds are distributed throughout the divisions to accomplish the **top conservation priorities** across the state for the Department.

Wildlife	\$23,856,280
Capital Improvements	\$20,221,606
Forestry	\$19,208,297
Outreach and Education	\$16,948,983
Protection	\$16,141,009
Fisheries	\$14,699,511
Resource Science	\$14,333,827
Administrative Services	\$14,234,175
Design and Development	\$14,190,320
Information Technology	\$14,037,019
Private Land Services	\$9,785,347
Administration	\$3,052,094
Human Resources	\$2,675,841
Regional Public Contact Offices	\$2,204,105
County Assistance Payments	\$2,034,827

Sustaining and Improving Fish, Forest, and Wildlife Resources

Keeping Missouri's Deer Herd Healthy

Chronic wasting disease (CWD) is a deadly deer disease that has been found in northeast, central, and east-central Missouri. The Department tested 7,756 free-ranging deer for CWD during the 2015–2016 fall and winter hunting season. Results yielded seven additional confirmed positives for the fatal deer disease, including positives in two new counties, Cole and Franklin. To help limit the spread of CWD, the Conservation Commission passed regulations in December 2015 to increase CWD testing efforts during fall firearms season in November 2016, with mandatory sampling during opening weekend in the 29-county CWD management zone. In addition, the Department has increased CWD surveillance efforts in the southern part of the state after the discovery of CWD in Arkansas. The Department's CWD-testing efforts are critically important to protect a treasured wildlife species that is pursued by about a half-million hunters each fall.



CWD KILLS
DEER AND
OTHER CERVIDS
BY CAUSING
**DEGENERATION
OF THE BRAIN.**
THE DISEASE HAS **NO
VACCINE OR CURE,** AND
IS **100 PERCENT FATAL.**

The Fight Against Feral Hogs

Feral hog populations grow rapidly, producing two litters of piglets every 12 to 15 months, and they carry diseases such as swine brucellosis, pseudorabies, trichinosis, and leptospirosis. These destructive, invasive pests are not wildlife and pose a serious threat to fish, forests, and wildlife, as well as agriculture and human health. The Department's goal with feral hogs is a straightforward one — remove them completely from the Missouri landscape. While this goal seems simple, the solution to eradicate these destructive animals is a multitiered process, including increased trapping efforts, working with private landowners, and deterring hog hunting, which scatters the hogs even farther around the state. In June 2016, the Missouri Conservation Commission approved changes in the *Wildlife Code of Missouri* that prohibit the hunting of feral hogs on Conservation Department lands effective Sept. 30, 2016. The Department also partnered with other conservation groups, agriculture organizations, and the Missouri Conservation Heritage Foundation to provide more equipment for trapping efforts on private and public land, and to fund public education efforts on the dangers of feral hogs.



Feral hog

Restoration Efforts

Animals and plants play a vital role in a healthy ecosystem. The Department continues its work at conserving the fish, forests, and wildlife in Missouri, including those species on the federally endangered or threatened list.



The Department continued its efforts with the St. Louis Zoo to halt the decline of the **Ozark and eastern hellbender** by rearing several hundred hellbenders at Shepherd of the Hills Hatchery from eggs collected in the wild.



Work continued, in partnership with the St. Louis Zoo, on the reintroduction efforts of the endangered **American burying beetle** on Wah'Kon-Tah Prairie.



Fisheries biologists were busy with restoration efforts of the endangered **Topeka shiner**, a small minnow that lives in prairie streams, and reintroduced 3,760 shiners at Union Ridge Conservation Area.

Science-Based Conservation

The Department uses a science-based approach to manage fish, forests, and wildlife in the state, and research projects are one of the ways the Department obtains this critical information. With several multiyear research projects happening simultaneously, these results help inform management decisions and sustain opportunities for all Missourians to enjoy these resources for years to come.

Deer Study

Department biologists and researchers at the University of Missouri–Columbia are learning more about white-tailed deer survival, reproduction, and movement as a five-year research study progresses. Researchers are in the second year of the study and are currently tracking 177 deer wearing GPS collars. Biologists can then map each deer's travels, or if movement stops, note mortality.



Elk in the Ozarks

Missouri's elk are thriving with approximately 130 elk in the population. A research project is underway to help biologists better understand how elk survival and reproduction differ each year. As the elk herd expands, the Department continues to work with landowners to promote elk habitat.



Turkey Time

A five-year wild turkey research project monitors populations in northern Missouri, which includes banding and putting radio transmitters on wild turkeys to determine gobbler and hen survival. Over the past two years, more than 580 turkeys have been captured, banded, and released. Research will help determine what proportion of the banded wild turkeys are harvested by hunters, and what seasons show the highest survival rates.



Pallid Sturgeon Sampling

In spring 2016, Department staff conducted the eighth annual pallid sturgeon brood-stock sampling effort along a 50-mile stretch of the Missouri River. Fisheries biologists send wild adult pallid sturgeon to Department hatcheries to spawn to benefit dwindling populations until they can be self-sustaining again. Sixty-eight pallid sturgeon and 2,770 shovelnose sturgeon were sampled with 10 pallid sturgeon headed to the hatchery.



Planning for the Future

The Department submitted the Missouri State Wildlife Action Plan (SWAP), which must be updated and renewed every 10 years, to the U.S. Fish and Wildlife Service in September 2016. This large-scale plan assesses the health of Missouri's plants and animals, and identifies actions necessary for the long-term conservation of these resources and habitats. In addition to staff involved in developing the plan, the Department engaged partners during two workshops to obtain valuable input on key conservation landscapes throughout Missouri. Submission of the SWAP qualifies Missouri to receive state wildlife grant money to support ongoing species and habitat conservation.

A Very Fishy Story

Missouri hatcheries are fascinating places to visit. Where else can you see millions of fish at one time? Hatcheries and trout parks also play a vital role in supporting Missouri's stellar fishing through fish stocking efforts across the state. In 2015, the Department's warm-water hatcheries produced 6.4 million fish to stock in public waters, including striped bass, muskie, channel catfish, grass carp, hybrid sunfish, and walleye. Not to be outdone, the cold-water hatcheries also had a strong year, stocking 1.6 million trout at four trout parks, 12 stream special management areas, and Lake Taneycomo. These efforts make Missouri a great place to fish!

Shepherd of the Hills Fish Hatchery



83%
OF MISSOURI WOODS
AND FORESTS ARE
PRIVATELY OWNED

Missouri Managed Woods Program

The Conservation Department has a long history of working with landowners to promote the sound management of privately owned forests. With 83 percent of Missouri woods and forests privately held, care of this important resource is critical. This year, the Forest Crop Land Program, a voluntary program established in 1946 to provide property-tax reduction and landowner assistance, was updated and invigorated into the Missouri Managed Woods Program. The program will provide priority assistance from a professional forester, a forest management plan, help with conducting a timber sale, a property tax reduction, and membership in the American Tree Farm System.

Connecting Citizens to Fish, Forest, and Wildlife Resources

Volunteer Power

Volunteers are a vital part of the work the Department does each year. The conservation work is as varied as the dedicated volunteers — monitoring for water quality or removing trash through Missouri Stream Team, teaching future hunters and anglers, leading programs at nature centers, monitoring forest health as forestkeepers, or large-scale conservation projects through Missouri Master Naturalist chapters. All the volunteers, plus the many projects they help put on the ground, strengthen and advance conservation in Missouri year after year.

Missouri's
4,316 active
Stream Teams
donated
146,919
hours, removed
more than **470**
tons of trash,
planted **5,052**
trees, and
conducted **905**
water quality
monitoring trips.

The 12
community-
based Missouri
Master
Naturalist
chapters
donated more
than **62,000**
hours from
bird monitoring
to tree planting
to native seed
collection.

Conservation
volunteers at
nature centers,
staffed
shooting
ranges, and
interpretive
sites
collectively
provided more
than **59,000**
hours of
service.

Fishing
instructor
volunteers
taught
nearly
6,000
novice
anglers
in more
than **300**
classes
statewide.

Helping Kids and Families Discover Nature

Helping kids and families discover nature is a key part of the Department's mission. Last year, the Department held eight Discover Nature Girls Camps for girls ages 11–15. To get young women excited about the outdoors, camp classes include hunter education, archery, canoeing, fishing, tree-stand safety, and Dutch oven cooking. This popular program added two new camps in 2016, including an additional inner city St. Louis camp.



The Department also partnered with the St. Louis County Police Department to host a Kids Fishing Fair for youth in Ferguson. Kids had the opportunity to learn about fishing under the mentorship of conservation agents, followed by a fish fry. The success of the event showed in the smiles on the faces of the kids, many catching their first-ever fish, and the positive interactions between the kids and law enforcement.



Black bear

Be Bear Aware

Missouri's black bear population is growing. As this exciting part of the state's natural history returns, the Department is educating the public on the safest practices if you encounter a bear. "Be Bear Aware" is a communications strategy that teaches the public not to feed bears, provides safety tips while camping or hiking, and provides instructions on how to report a bear sighting or property damage. Bear signage was developed for the Department's high-use conservation areas in black bear country, or where bears are more prevalent in the southern part of Missouri, to educate hikers on what to do if they see a black bear. Department staff has also increased outreach efforts with the public and media on being bear aware.

*"Bears are creatures of habit, so if they find they can get a free meal somewhere, they're likely to stick around, and **that's when they get in trouble.**"*

—Department Wildlife Management Coordinator Alan Leary



New Missouri Birding Trail

The Great Missouri Birding Trail was launched in April 2016 to welcome new bird watchers and point out a few new birding spots to seasoned veterans. The birding trail is not a physical trail, but rather a map of the “best of the best” birding sites across Missouri. The new website, GreatMissouriBirdingTrail.com, features an interactive map that shows birding locations with high-quality habitats for resident and migrating birds. The trail is divided into six trail regions, each with its own group of sites to explore, with Kansas City, St. Louis, central, and southeast trail sections already complete, and northeast and southwest coming soon. The Kansas City and St. Louis trails also have a Metro Trail, which features birding sites close to the city center to promote urban birding. The project is a partnership between the Missouri Bird Conservation Foundation and the Conservation Department, with other state, nonprofit, and federal supporters.



Feeding the Hungry Through Share the Harvest

While hunters often share their deer photo with family and friends each season, they rarely take credit for the gift that comes next — helping to feed hungry Missourians through their deer meat donation. Through the Share the Harvest program, made possible by the efforts of the Department, Conservation Federation of Missouri, charitable organizations, and local meat processors, more than 3.5 million pounds of deer meat have been donated to local food pantries since the program started in 1992. Hunters can donate all or part of their deer to Share the Harvest.

IN 2015,
MORE THAN
4,500
HUNTERS
DONATED
228,306
POUNDS OF
VENISON TO
MISSOURI'S
FOOD
PANTRIES.





Helping Communities – One Tree at a Time

The Conservation Department awarded \$411,084 to 41 Missouri communities through its Tree Resource Improvement and Maintenance (TRIM) grant program. TRIM grants offer cost-share funding for government agencies, public schools, and nonprofit groups to manage, improve, or conserve trees on public lands. TRIM grants help recipients accomplish activities that keep their neighborhood trees healthy and thriving, including inventory, pruning, planting, and educational programs. Department forestry staff also worked to actively build relationships with rural and volunteer fire departments in communities across the state, and made over 1,900 contacts with fire department staff. In cooperation with the U.S. Forest Service, the Department also awarded \$338,490 in grants to 156 rural fire departments for the purchase of wildfire equipment. Rural fire departments in the state use the grants for equipment to increase the efficiency of fire suppression efforts and firefighter safety.

Missouri's Big Ol' Fish

It was a record year for fishing in Missouri, with 16 new state record fish, including five in the pole-and-line category and 11 in the alternative method category. There haven't been this many state fishing records since 2002. The biggest fish topped the scales at 100 pounds and was 57 inches long. The massive flathead catfish was caught by trotline on the Missouri River. For a

list of all current and past state record holders, visit short.mdc.mo.gov/Zk9.



"I've caught several big fish in the Missouri River, but this one is by far the biggest and most memorable. I still can't believe I caught this giant of a fish and broke the state record."

—Mathew McConkey (left) of Kansas City, Missouri, record holder for flathead catfish in the alternative method category.

Next Generation of Active Anglers

Fishing is a great way for kids and families to have fun together and explore the outdoors. Department staff train experienced anglers from all around the state to help others learn to fish through its free Discover Nature — Fishing program. The statewide program provides a series of four separate lessons to help kids and families gain skills and confidence to go fishing on their own.

IN FISCAL YEAR 2015-2016,
314 FISHING CLASSES WERE HELD AND
6,797 INDIVIDUALS BECAME NEW ANGLERS.
THE DEPARTMENT ALSO ORGANIZED
352 FISHING EVENTS ACROSS THE STATE
WITH ALMOST **30,000 PARTICIPANTS**.



ROD AND REEL LOANER PROGRAM

The Department makes fishing more accessible through the Rod and Reel Loaner Program, which is available in 78 locations across the state. People can check out fishing poles and tackle boxes for free at participating sites. The fishing poles are equipped with standard spin-cast reels. The tackle boxes are supplied with hooks, sinkers, and bobbers for basic fishing opportunities. For a loaner location near you, go to short.mdc.mo.gov/ZJq.

Enhancing Operational Excellence and Superior Customer Service



CLIFF WHITE

And the Winner is ... MO Hunting

The Department's MO Hunting mobile app was selected for the 2015 Governor's Award for Quality and Productivity in the category of Technology in Government. The MO Hunting app working team, which included 16 staff from various Department divisions and six employees from technology consultant Timmons Group, was honored at a ceremony in the Missouri Capitol Rotunda last October. In addition, the Department was recognized for its work with Geospatial Information Systems (GIS) by the Environmental Systems Research Institute, a worldwide leader in GIS technology. The team was honored for implementing a Department-wide GIS to help with statewide operations in managing Missouri's fish, forest, and wildlife resources.



A New Era for Permits

Did you know the Department issues 2.6 million hunting, fishing, and trapping permits each year? The Department's goal is to make the permit-buying process as easy as possible, including offering various ways to purchase your permit — by app, computer, phone, or in-person at a permit vendor. In March 2016, the Department transitioned to a new permit system with added conveniences for permit buyers, plus a reduction in operational costs for the agency. The new system is now all internet-based, allowing at-home buyers as well as permit vendors across the state to buy permits and print directly on a personal printer. With MO Hunting and MO Fishing, hunters and anglers buy and view annual permits directly from their mobile device.

Missouri's Medal of Valor

Each year, consideration is given to individuals who might be deserving of Missouri's Medal of Valor, the highest public safety award given in the state. The Governor selected nine recipients to receive this special recognition in December 2015, including three Department staff. Conservation Agents Jade Wright, Eric Abbott, and Anthony Maupin were awarded medals for their lifesaving actions to rescue eight motorists and a school bus driver stranded by flash flooding in northwest Missouri.

Conservation Agents Jade Wright, Eric Abbott, and Anthony Maupin



LUCAS BOND



State Forest Nursery

The state nursery annually grows and distributes close to 3 million seedlings of more than 60 species of trees. These seedlings, planted on both public and private lands statewide, include trees and shrubs suitable for reforestation and wildlife habitat restoration. The nursery fills more than 10,000 orders annually, and an electronic ordering system now integrates the inventory tracking and seedling delivery. During the summer of 2015, Missouri Master Naturalist volunteers joined the Department in the Milkweeds for Monarchs initiative. Department staff provided training in milkweed identification and seed collection. Volunteers then collected milkweed seed at various locations throughout the state and sent it to the state nursery for propagation. The nursery successfully propagated close to 50,000 milkweed plants that include three different species of milkweed. These plants will be distributed to Master Naturalist chapters, Department staff, and conservation partners for planting on public lands.



Common milkweed seed

Connecting With Citizens

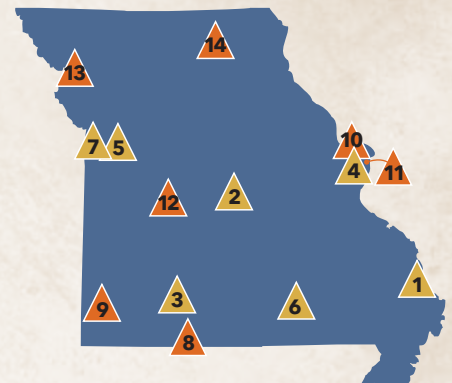
With conservation agents located in every county in Missouri, agents are the face of conservation for many citizens. They serve a huge role in communicating with the public. Conservation agents represented the Department at 5,331 meetings with civic groups, schools, church groups, and other organizations last fiscal year.

AGENTS COMPLETED **6,836 RADIO AND TELEVISION PROGRAMS**, PUBLISHED **2,092 NEWS ARTICLES**, AND CONDUCTED **2,350 PUBLIC EXHIBITS**. AGENTS ALSO MADE CONTACT WITH MORE THAN **482,085 CITIZENS** AND ANSWERED **160,820 PHONE CALLS**.



Nature Centers and Interpretive Sites

The Department operates seven nature centers and seven interpretive sites that are open to the public. Together, these centers and sites see more than 800,000 visitors each year and host over 186,850 programs.



Conservation
Nature Centers

- 1 Cape Girardeau
- 2 Runge
- 3 Springfield
- 4 Powder Valley
- 5 Burr Oak Woods
- 6 Twin Pines
- 7 Discovery Center

Interpretive Sites

- 8 Shepherd of the Hills Fish Hatchery
- 9 Wildcat Glades Conservation and Audubon Center
- 10 Columbia Bottom Conservation Area
- 11 Rockwoods Reservation
- 12 Lost Valley Fish Hatchery
- 13 Northwest Regional Office
- 14 Northeast Regional Office

Increasing Citizen Access to Fish, Forest, and Wildlife Resources



Pickle Springs Natural Area



Increasing Outdoor Recreational Opportunities

A new program was launched statewide in summer 2016 to provide payments to private landowners for public access for hunting, fishing, and wildlife viewing on their land. The voluntary Missouri Outdoor Recreational Access Program (MRAP) also offers financial incentives for wildlife habitat improvement on enrolled lands. The program primarily focuses on enrolling lands in northern Missouri, where public access opportunities are generally more limited. Funding for the program is provided largely by a \$1.1 million federal grant from the U.S. Department of Agriculture's Voluntary Public Access and Habitat Incentive Program. The Conservation Department offered a pilot MRAP program in fall 2015 in northeast Missouri and enrolled more than 1,600 acres. The Department's goal is to enroll as many as 10,000 acres.

"This is a chance for property owners to **generate additional income** while also having the chance to share their land with others."

—Department MRAP Manager Jeff Esely

Managing Public Land for Missourians

The Department manages more than 900 properties, totaling over 1 million acres statewide, for the purpose of restoring and conserving fish, forest, and wildlife resources and providing outdoor opportunities for Missourians. This year, Department staff worked on habitat management on nearly 267,500 acres of public land, including wetlands, woodlands, forests, savannas, cropland (through permittee farmers and food plots), grassland prairies, old fields, and glades. Public review of conservation area plans also offers an opportunity for Missourians to comment on the management of a specific area. In fiscal year 2016, staff posted online 82 area plans covering 140 areas for public comment.

LISTENING TO MISSOURIANS Delivering excellent public service means listening to and understanding what Missourians say about conservation programs and services. In fiscal year 2016, there were **147 public engagement opportunities**, including smallmouth bass and chronic wasting disease meetings, annual hunter surveys, conservation area plan comment periods, Regulation Committee comments, and a statewide landowner survey.

Missourians for Monarchs Collaborative

The drastic decline of the monarch has spurred conservation action in Missouri and across the U.S. The Department is working with more than 30 agencies and organizations to develop a collaborative monarch and pollinator conservation plan for Missouri. The Missourians for Monarchs collaborative has representatives from agribusiness, conservation organizations, academia, state and federal agencies, volunteer organizations, and agriculture organizations. This plan is being used as a national model for other states because of the diversity within the collaborative and the aggressive goal of establishing more than 19,000 acres of pollinator habitat per year.



Pipevine swallowtail butterfly

Sweat bee

Snowberry clearwing moth

POLLINATOR SUCCESS STORIES

The A.L. Gustin Golf Course, located in the heart of Columbia, is a high-traffic golf course with 125 acres offering a unique opportunity to connect citizens with nature. Department staff partnered with A.L. Gustin to complete habitat improvement projects, including a **youth pollinator seeding event** in 2016 on the A.L. Gustin grounds. Close to 200 youth learned the importance of wildlife and pollinator conservation and, at the end of the event, assisted in establishing a 2-acre pollinator planting.

In 2014, the Department and 50 other diverse organizations partnered with the newly formed Kansas City Native Plant Initiative to establish the Council of Partners. This group began increasing native plants in the Kansas City urban landscape, which developed into a \$229,868 National Fish and Wildlife Federation Monarch Conservation Grant award. This grant facilitated the signing of the **Monarch Proclamation** by Kansas City's mayor in 2016 with numerous ongoing educational opportunities on pollinators.

Community Conservation grants from the Department connected people to nature through habitat management in major parks and open space, including St. Louis's Forest Park, Chesterfield's Eberwein Park, and Kirkwood's Greentree Park. The City of St. Louis Urban Vitality and Ecology partnership and grant leveraged over \$400,000 in other grants to support projects like the **St. Louis Riverfront Butterfly Byway**. This project will focus on creating monarch butterfly habitat along the 19-mile riverfront and working with residents to strategically convert vacant land to ecologically vibrant open space.



Archery in the Schools Builds Confidence

Missouri National Archery in the Schools Program (MoNASP) continues to grow and thrive in Missouri with 580 schools participating each year. This equates to more than 160,000 students in grades 4 through 12 getting the opportunity to learn the lifetime sport of archery as part of their school curriculum. Since the Department joined NASP in 2007, more than half a million Missouri students have participated in MoNASP. The Department hosted the eighth annual MoNASP state tournament in March with more than 1,450 archers competing in the two-day tournament.



MORE THAN
750 MISSOURI
ARCHERS QUALIFIED
FOR THE NATIONAL
TOURNAMENT HELD IN
LOUISVILLE, KENTUCKY.

Community Fisheries Assistance

Through the Community Assistance Program and other partnership programs, the Department enters into agreements with cities, counties, state and federal agencies, businesses, foundations, schools, and colleges to cooperatively develop and maintain facilities for anglers and boaters at lake and stream areas. Currently, there are 119 partners in the cooperative management of 168 public lakes, 43 stream access areas, four lake access areas, 10 aquatic education ponds, and 15 lake access facilities. New agreements were made with the cities of Canton, Concordia, Marble Hill, Monroe City, St. James, and with Harrison County.



CONNECTING WITH LANDOWNERS

Department staff in fisheries, forestry, and private lands services provided technical assistance to **28,873 rural and urban landowners**, including 7,825 personal site visits, resulting in more than 2,700 habitat, forest, and watershed-management plans being developed this fiscal year. In addition, the Department held 422 habitat management workshops, stream and lake management workshops, field days, and technical training sessions for landowners.

Landowner Assistance Cost-Share Program

It was a record year for helping landowners. The Department allocated a record \$1.6 million in cost-share assistance to help landowners meet fish, forest, and wildlife objectives on their property. The cost-share pays for 50–75 percent of a project, such as timber stand improvement, natural community restoration, and pollinator habitat. In addition, over \$1 million in incentives were paid to landowners participating in programs offered by other conservation partners to encourage higher-quality plantings for wildlife, including bobwhite quail and pollinators. The Department also helps USDA implement millions of dollars in practices for landowners through conservation programs funded through the federal farm bill.



Wetland Restoration Funding

The Department received \$2.4 million from the U.S. Department of Agriculture to restore and enhance existing wetlands on private land. The Department will provide an additional \$700,000 in matching funds, bringing the total investment in wetland restoration to \$3.1 million over the next three years. These projects, funded under the Wetland Reserve Enhancement Program and administered by the Natural Resources Conservation Service, will improve habitat for many waterfowl species, amphibians, and a wide host of other plants and animals. Over 125 private landowners applied for restoration funds. In the first year of the project, approximately 2,000 wetland acres will be enhanced on 20 different private properties across the state.



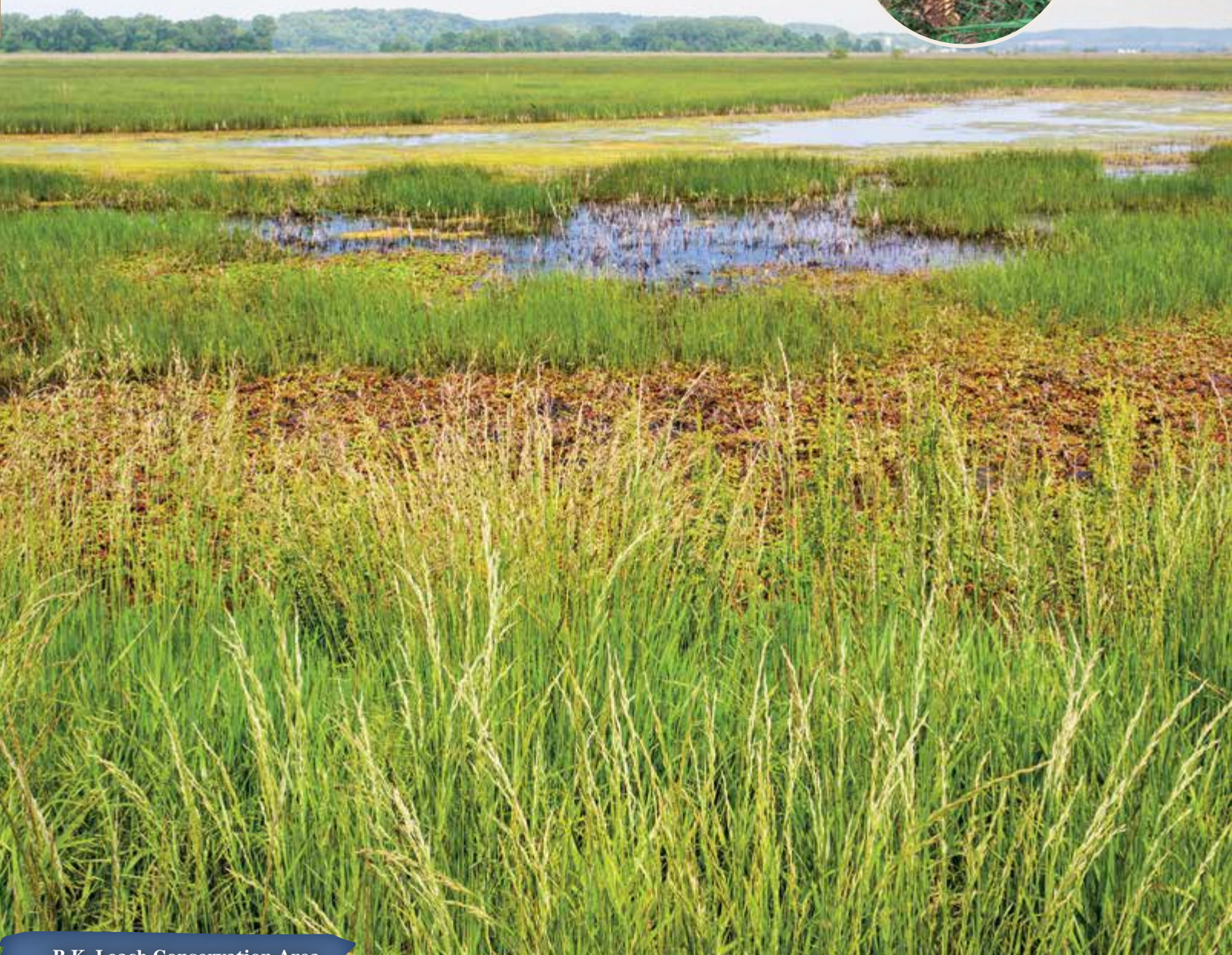
Bullfrog



Black-necked stilt



Common snapping turtle

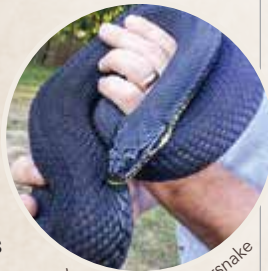


Top Conservation Stories 2015-2016

Virgin Snake Birth

A long-time resident of the Department's Cape Girardeau Conservation Nature Center, a female yellow-bellied watersnake made international news when she laid eggs in 2016 after having had no contact with a male for eight years.

The offspring from this virgin birth didn't survive, but two young ones from 2015 are thriving and serving as educational reptiles at the nature center.



Yellow-bellied watersnake

688-Mile River Journey

Department resource scientists tracked an American eel on what they called an extreme long-distance migration of 688 river miles. The eel was one of 20 eels implanted with transmitters by Department scientists working on a special project to identify American eel habitat and movement patterns.

Record Flooding

After Christmas 2015, rivers across the state experienced record crests not seen since the great floods of 1993. Department fisheries staff worked around the clock at the hatcheries to help minimize the impact of flooding on the hatchery buildings, fish production, and fish numbers. These tremendous staff efforts ensured a successful fish stocking season, including the March 2016 trout season opener and other fish stocking efforts around the state.



Montauk State Park

RON LEWIS

Wildlife Poaching

Wildlife poaching continues to be a concern in Missouri. In December 2015, a dead bull elk was found shot and the skull plate and antlers removed with a chainsaw along the Current River in Shannon County. The Department is still seeking leads in this case. A black bear, which is a protected native wildlife species, was shot and killed in Jefferson County in May. The Department encourages the public to help report any wildlife violations to their local conservation agent or by calling the Operation Game Thief hotline at 1-800-392-1111.

Stocking Hybrid Striped Bass

The Department stocked more than 300,000 hybrid striped bass in several lakes across the state. The stockings are part of a study and stocking plan to control an overpopulation of gizzard shad in small lakes. The hybrid stripers were reared at the Department's Lost Valley Fish Hatchery in Warsaw.

Did you know that permit sales provide a significant contribution to conservation efforts in Missouri? In fiscal year 2016, permit sales provided **more than \$34 million** in funding to help accomplish top conservation priorities across the state.



1,272,676
DEER HUNTING
PERMITS SOLD



222,534
TURKEY HUNTING
PERMITS SOLD



257,592
SMALL GAME
HUNTING PERMITS
SOLD

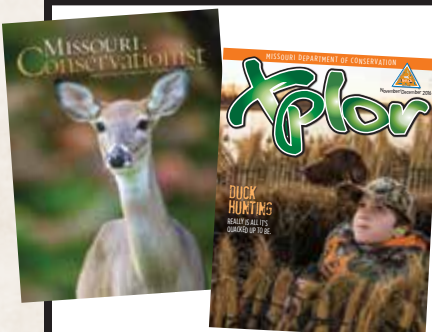


895,417
FISHING PERMITS
SOLD



400,507
TROUT TAGS
SOLD

AMOUNTS ABOVE REPRESENT 2016 PERMIT YEAR SALES THROUGH NOV. 20, 2016



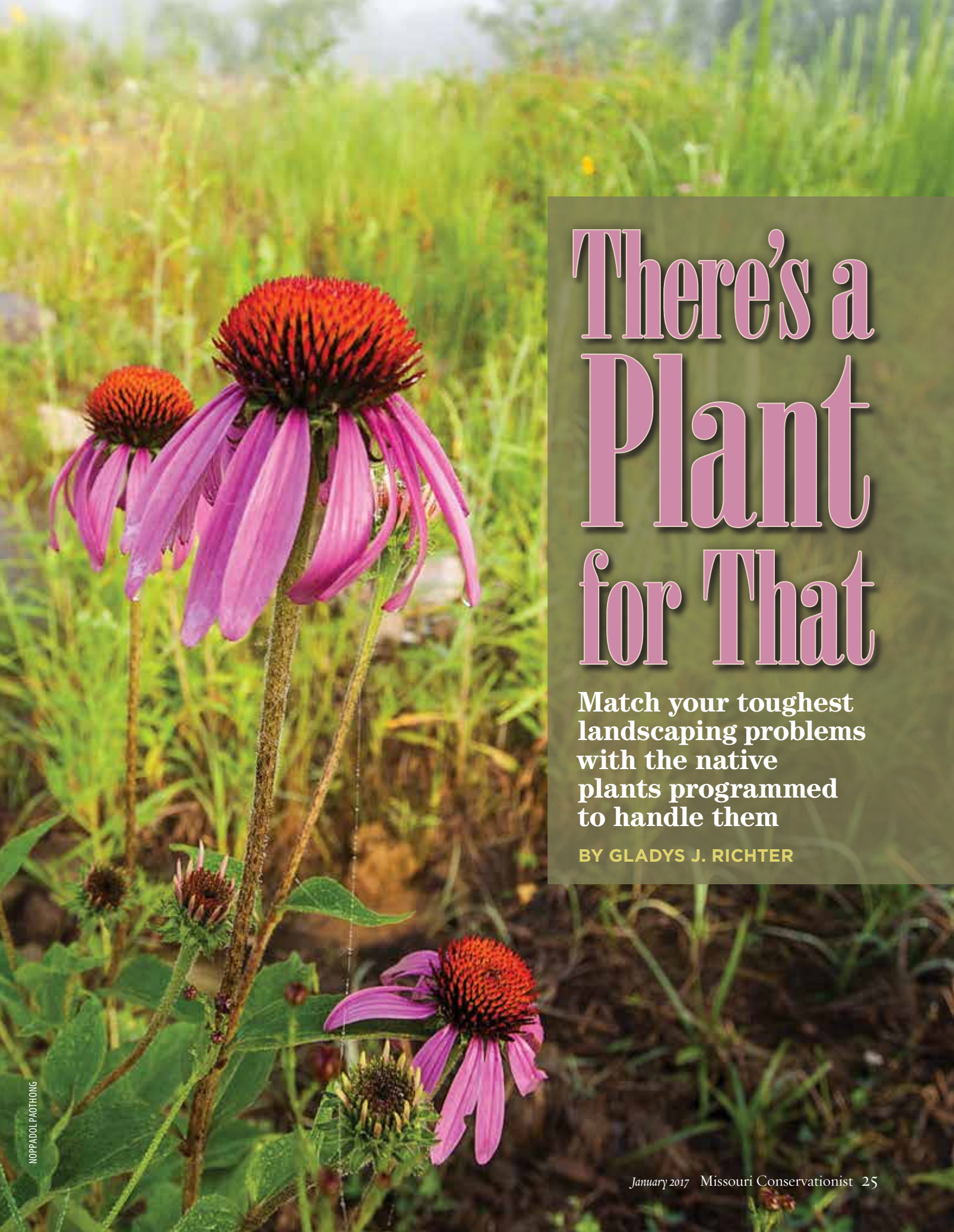
KEEP IN TOUCH WITH CONSERVATION

The Department continues to provide a variety of ways to keep in touch with all Missourians. You can get news through our free monthly magazine, the *Missouri Conservationist*, and our bimonthly kids' magazine, *Xplor*, or sign up on our website to get key conservation topics delivered directly to your email. If you live by smartphone communication, you can also get texts, follow us on social media (Facebook, Instagram, Twitter, or YouTube), or check out our mobile-friendly website.

mdc.mo.gov



WATERSNAKE: CANDICE DAVIS



There's a Plant for That

**Match your toughest
landscaping problems
with the native
plants programmed
to handle them**

BY GLADYS J. RICHTER



Indian paintbrush



Missouri evening primrose



Butterfly weed



Blazing star



Columbine

SOGGY SOIL GOT YOU DOWN? NO PROBLEM, THERE'S a plant for that. Are there rocky, bare spots in your Missouri yard? There's a plant for that, too. No matter the soil type, how rugged the terrain, or how shady your situation, there are Missouri native plants perfectly programmed to bring beauty and wildlife to your home landscape.

Historically, wide expanses of prairie and bright, rocky glades sparkling with drought-tolerant plants made up Missouri's landscape. Bottomlands near streams flourished with hardwood forests and mosaics of water-tolerant plant life. Then along came farms, towns, industries, and highways. In fact, your own home landscape and its vegetation have probably changed several times.

In spite of these changes, your yard still sits atop its original bedrock, soil, and groundwater systems. It may even harbor some dormant native plant communities, just waiting for the right conditions to bring them back into view.

To choose the native plants that will solve your yard's toughest landscaping problems, take a look around and decode your property's trouble spots according to the types of native habitat they exhibit.

Blooming Deserts

Missouri's landscape is dotted with dry, sunlit areas resembling miniature deserts or informal rock gardens. Thin, rocky soils with tough, textured, and colorful plants characterize areas known as glades. They form

atop different types of bedrock such as limestone, dolomite, and sandstone, and each has its own plant community. Glades are home to a wide variety of lizards, butterflies, moths, birds, and other small wildlife.

If your area of concern sits on a south- or west-facing slope in full sunlight and has an outcrop of rocks, you may have the remnants of a glade. Check to see if eastern red cedars, which often invade glades, are growing nearby. The easiest way to begin restoring a natural glade is to cut and remove the cedars. If your thin, rocky area is already open, plant a few swaths of native glade plants to maintain areas of bloom from spring through fall.

Indian paintbrush, Missouri evening primrose, rose verbena, and orange puccoon are spring-bloomers that thrive on rocky terrain. Summer can be brutal on plant life, but black-eyed Susans, yellow coneflowers, and butterfly weed are drought-tolerant plants that add a lot of color without the intensive care that introduced plants require during the heat of summer. An autumn glade is often filled with purple shades of blazing star and fall asters alongside glowing yellow goldenrods.

Establishing a glade in an existing rocky area starts with planting a few potted species and perhaps placing a



Bluebells



Southern blue flag



Lobelia



Christmas fern



Purple prairie clover

few more stones to complete the design. Once established, native glade plants self-sow readily without intensive maintenance or watering, and a selection of well-adapted wildflowers, grasses, shrubs, and trees adds color and architecture year-round.

Woodland Neighbors

Many plants are intolerant to shade, but our native woodland species fill a shady niche. Early blooming spring wildflowers can be successfully grown beneath mighty oaks, hickories, and ashes.

Blue phlox, wild geranium, columbine, and bluebells make exceptional showy choices for a shady woodland habitat display. Moist, humus-rich soil with ample leaf litter suits most woodland species in our oak-hickory forests. Once established, they multiply on their own. Since these wildflowers bloom before trees completely leaf out, you can plant a colorful palette that may be accented with understory trees and shrubs such as service berry, flowering dogwood, eastern redbud, and pawpaw. Native low-bush blueberries, spicebush, and aromatic sumac also do well along woodland edges.

Cinnamon ferns, Christmas ferns, and maidenhair

ferns are natives that add structure and rich earth tones after the wildflowers have finished their early bloom period.

Wetlands and Rain Gardens

Low-lying depressions that remain wet for long periods of time after rainfall are perfect places for plants naturally adapted to growing in damp soils. Eye-catching beauties such as bright red cardinal flowers, blue lobelias, rattlebox loosestrife, and lizard's tail all make outstanding candidates for such sites.

Areas receiving large amounts of storm water runoff can benefit from an established rain garden. These wide, shallow basins filled with water-loving plants are designed to redirect and slow the flow of storm water and reduce erosion. Plants such as swamp milkweed, southern blue flag, and false dragonhead make ideal selections for these gardens.

For soils with considerable clay content, plants that are tolerant of both wet conditions and dry, compacted soils are your best bet. You can tell if your site has clay if the soil is sticky when wet and forms cracks when it dries out.

Purple coneflowers, common milkweed, coreopsis, and purple prairie clover are native wildflowers that take root in heavy soils. Indian grass, bluestem, and buffalo grass also grow well in such sites. Planting clay-tolerant species provides quicker results than trying to amend the soil for plants that are less adapted to such conditions.



Yellow coneflower



Common milkweed



Blackberry



Sideoats grama

Pocket Prairies

A large, sunny, open space away from your house or along a boundary fence may allow you to develop a small-scale prairie devoted to native grasses and wildflowers. With this type of landscape you replace introduced grasses such as fescue with natives — little bluestem, big bluestem, sideoats grama, and Indian grass.

Among the grasses are hardy wildflowers such as blazing stars, milkweeds, and cone flowers. You may wish to add a few unique looking jewels to the mix. Rattlesnake master and compass plants help to create a more complete prairie atmosphere. Many of these plants also do well along the edges of glades, and they may be used as accent plants.

Digging a Little Deeper

Determining what native plants may do well in your yard sometimes requires a soil analysis. Knowledge about your soil's pH levels can be beneficial when choosing native plants. Local county extension services can provide information and soil testing. Wildflowers often do not require fertilizer. In fact, many will not grow if the soil is overly enriched. This is especially true of plants that grow on rocky or in heavy clay soils. Some plants fare

better in acidic soils. Others thrive under more alkaline conditions.

In the beginning, native plants may require a bit of site preparation such as the loosening of soil or removal of nonnative vegetation to reduce competition with native seedlings. Mowing may also be necessary, especially during the first year. As your native landscape takes hold, you will notice that you have a more self-sufficient site that requires very little maintenance.

Invite Wild Neighbors

Songbirds, butterflies, or other wildlife will come closer to your door if you establish plants that produce berries and seeds. Natives such as blackberries, raspberries, wild plum, cone flowers, milkweeds, and coreopsis provide both food and shelter across the seasons.

Increasing plant diversity translates into wildlife diversity. Over the years a wildlife oasis forms, creating eye-catching appeal.



Growing Native Plants is a Win-Win!

Once established, native plants require less maintenance than introduced species, add natural beauty, and provide food and shelter for Missouri's wildlife.

For advice on native plants and garden tips to fit your property design, check out the Grow Native! program. A partnership of the Missouri Prairie Foundation, the Missouri Department of Conservation, and other organizations, Grow Native! provides valuable information on selecting and growing your own wildlife oasis. Find details on plant specifics such as color, height, and preferred soils, along with local plant nurseries that carry Missouri natives grown from local seed and stock at grownative.org.

In addition, the Missouri Department of Conservation provides many publications on native plants through its website and local offices. The publication *Native Plants for Your Landscape* at short.mdc.mo.gov/ZoZ highlights designs for butterfly gardens and songbird havens. Nature centers throughout Missouri provide programs designed to showcase Missouri's plants and animals. For more information or to check on upcoming programs, browse mdc.mo.gov/events or visit your local conservation nature center.

Be Careful What You Bring Into Your Yard

Some plants may look pretty on the surface, but they can harbor a dark side. Nonnative flowers, shrubs, and trees can create problems for both landowners and wildlife. Escaped exotics such as bush honeysuckles, Bradford pear, and burning bush may naturalize in a new environment and choke out plants that cannot compete with the rapid growth and reproduction of introduced species. Native animals also suffer when aggressive exotics degrade or displace their habitat. Check mdc.mo.gov and search "invasive plants" for a list of plants to avoid planting in your yard.

Native doesn't always mean appropriate, either. If you have a small lawn, planting fast-spreading natives can get you into trouble with your neighbors if shoots start popping up in their lawn. Native plants that often become aggressive include goldenrod, sawtooth sunflower, and members of the mint family, such as bee balm and wild bergamot.

Before bringing new plants home, be sure to check for local ordinances for special regulations regarding plants and trees, especially those planted under utility lines.

Gladys J. Richter is an interpretive freelance writer who lives near Richland.



Bradford pear



Bush honeysuckle

Trumpeter Swan

A FRIEND CALLED to let me know there was a bevy of over 70 trumpeter swans on his Grand River wetland in Livingston County. He said they had been coming there for years, but this was the largest gathering he could remember. It was after duck hunting season in the North Zone, so he invited me to photograph the swans using his hunting blind so I could stay hidden and out of the biting January wind.

After parking by a grain bin in the predawn light, I trudged to the blind clad in waders and a heavy coat knowing that I would be sitting still for quite a while. The sticky river bottom mud, known as “gumbo,” clung to my boots in balls making my footing precarious as I approached the shallow wetland basin between corn and soybean fields. It was a spot that flooded readily, so the farm owners, Randy Price and his son, Ben, decided to work with nature and converted a portion of their crop fields into a wetland with a permanent hunting blind.

The swans paddled around the water as the sun rose, using their webbed feet to dig into the mud and churn up aquatic plants to eat. They would jump off the water in bunches of five or 10 and circle the area, occasionally flying to the cover of a wooded hillside in the distance.

Trumpeter swans (*Cygnus buccinator*) are listed as uncommon to rare, but they are being seen more often as reintroduction efforts gain traction. They range from the Bering Strait, across Canada, and as far south as Missouri and Illinois. The U.S. Fish and Wildlife Service estimates there are 16,000 trumpeter swans in North America, with only a few thousand around the Midwest. They are big birds that can have a wingspan up to 8 feet and weigh over 20 pounds. They are the largest waterfowl in North America and the largest swan in the world. It is important to note that these birds are a species of conservation concern and are sometimes mistaken for snow geese (*Chen caerulescens*) by hunters even though swans are significantly bigger and heavier, with a much longer neck. Killing a trumpeter swan could result in a significant fine.

I noticed one of the swans had a neckband, so I decided to see what I could find out about it. A quick online search for trumpeter swans with yellow neckbands marked in black with a number-number-letter sequence ending in “N” indicate that this swan was captured and banded in Wisconsin.

I photographed for a few hours until the light got too harsh to manage with my camera. It was a really relaxing morning out on the water enjoying such a big group of these birds. Their gentle nature and low honking call was soothing, and it was a great reason to be outdoors on the water.

—Story and photograph by David Stonner

📷 500mm lens • f/5.6 • 1/400 sec • ISO 100

We help people discover nature through our online Field Guide. Visit mdc.mo.gov/field-guide to learn more about Missouri's plants and animals.





Flag Spring Conservation Area

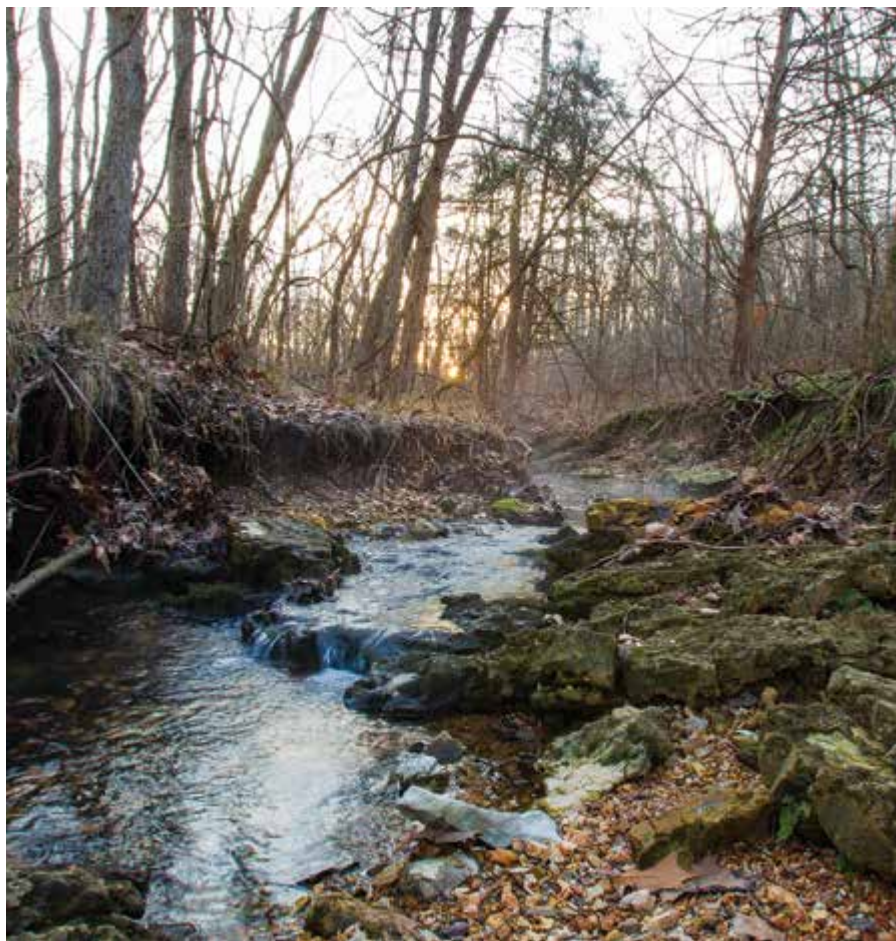
This 4,035-acre area in Barry and McDonald counties provides an array of outdoor winter activities, including hunting, hiking, horseback riding, and an unstaffed shooting range.

FLAG SPRING CA'S Ozark hills are mostly covered with forests and woodlands with some grassland, glades, and food plots. The area is crisscrossed with multiuse trails that allow for year-round hiking, bicycling, and horseback riding. In winter, these activities allow visitors to see deeper into forested areas not visible in the summertime. Flag Spring is also home to two unmanned shooting ranges, one for rifles and one for shotguns.

One of my favorite parts of the area is located in the southeastern portion. Visitors can park just off Flag Spring Road, where the trail crosses, and begin hiking south into a mixed oak-hickory stand. Throughout the hike, you will encounter a small waterfall, woodlands, glades, and bottomland forest. Halfway through the hike, you will find the largest and oldest fields on the area that are host to a variety of plants and numerous birds and other wildlife. The area's namesake spring can also be found on Flag Spring Road, near the southwestern corner.

Flag Spring offers a variety of other activities and accommodations for visitors. Four designated camping areas are open year-round. Firewood cutting is a popular activity in designated locations, permissible by a special-use permit. Hitching posts also can be found near many of the parking areas for horseback riders. On the eastern half of the area, visitors can access the multiuse trails leading to an old barn, which provides habitat to a variety of animal and bird species.

Deer are abundant on the area, and through



16–35mm lens • f/16 • 1/20 sec • ISO 1600 | by David Stonner

direct conservation efforts, wild turkeys are now present and in good numbers. As you explore Flag Spring, you will notice a variety of habitat management strategies used over the years. Food plots are scattered through the area, which help supplement natural foods for wildlife. Timber stand improvement cuts have been implemented to help increase the plant/tree/food diversity for wildlife and ensure adequate food sources from oak acorns and hickory nuts. Flag Spring is also near the edge of the native range of shortleaf pine, so you will find many spots where it has been planted and is thriving. Through controlled prescribed fire, woodland and glade communities are being restored to the area.

—Cody Bailey, area manager



Flag Spring Conservation Area

Recreation Opportunities: Hunting, hiking, horseback riding, bicycling, wildlife and bird viewing, camping

Unique Features: Year-round flowing spring, unstaffed rifle and shotgun ranges, fishless ponds

For More Information: Call 417-895-6880 or visit mdc.mo.gov/a8333



MDC DISCOVER nature

6

IDEAS FOR FAMILY FUN

To find more events near you, call your regional office (phone numbers on Page 3), or visit mdc.mo.gov and choose your region.

OWL PROWL AND EVENING STROLL

JAN. 6 • FRIDAY • 6–9 P.M.

Southwest Region, Springfield Conservation Nature Center, 4601 S. Nature Center Way, Springfield, MO 65804

No registration required, call 417-888-4237 for more information

All ages

Dickerson Park Zoo staff will offer two indoor owl programs at 6:30 and 7:30 p.m. The trails will be open and patrolled all evening, so bring a flashlight and a walking partner and take a stroll on your own.

WINTER TREES

JAN. 7 • SATURDAY • 10 A.M.–2:30 P.M.

Kansas City Region, Anita B. Gorman Discovery Center, 4750 Troost Ave., Kansas City, MO 64110

No registration required

All ages

Most trees have dropped their leaves and are in a state of dormancy during the heart of winter. Join us to learn how to identify trees without leaves and later create your own piece of wintertime art.



BACKYARD MAPLE SUGARING

JAN. 19 • THURSDAY • 10 A.M.–2:00 P.M.

St. Louis Region, Rockwoods Reservation, 2751 Glencoe Rd., Wildwood, MO 63038

Registration required beginning Jan. 5, call 636-458-2236

Adults

Do you have maple trees and love maple syrup? This workshop will teach you how to develop your own backyard maple syrup operation, from tree identification to cooking. Portions of the program are outside, so please dress for the weather.

OUR BIG YEAR

JAN. 21 • SATURDAY • 1–3 P.M.

Southeast Region, Cape Girardeau Conservation Nature Center, 2289 County Park Drive, Cape Girardeau, MO 63701

No registration required, call 573-290-5218 for more information

All ages, families

Come kick off our big birding year! Pick up your bird-sighting book and join us as we compete for Birder of the Year. We'll have craft-making and other activities. Sign up for our prize drawing to win a beginner's birding bag.

EAGLE ADVENTURE AT RUNGE

JAN. 28 • SATURDAY • 10 A.M.–3 P.M.

Central Region, Runge Conservation Nature Center, 330 Commerce Drive, Jefferson City, MO 65109

No registration required, call 573-526-5544 for more information

All ages, families

Participate in eagle activities, including crafts in the lobby at the nature center. Dickerson Park Zoo staff will offer live eagle presentations. Pick up a map to a wild eagle-viewing site where staff will help you view eagles (weather permitting).

EAGLE DAYS AT CLARKSVILLE

JAN. 28 • SATURDAY • 9 A.M.–4 P.M.

AND JAN. 29 • SUNDAY • 10 A.M.–3 P.M.

Northeast Region, Lock & Dam 24 and Apple Shed Theater, 702 South 2nd Street, Clarksville, MO 63336

No registration required, call 660-785-2420 for more information

All ages, families welcome

Events include live eagle programs, exhibits, activities, videos, guides with spotting scopes, and refreshments on-site or nearby.



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I Am Conservation

Sara Bradshaw enjoys trapping with her husband, Brandon, and daughter, Hadley, on family land near Cape Girardeau. The middle school science teacher “lives, eats, and breathes conservation,” according to Cape Girardeau Conservation Nature Center Manager Sara Turner. Bradshaw started hunting at age 10. “My dad and my uncles inspired me to start hunting at a young age,” said Bradshaw. “They took me shooting and showed me the love of the land and how to properly harvest animals.” Bradshaw also loves sharing hunting and conservation with others, and she does so through involvement with a variety of outreach programs including the National Wild Turkey Federation’s Women in the Outdoors and Wheelin’ Sportsman programs. “I have noticed that more and more of her female relatives have started hunting, which I think has something to do with her encouragement,” said Turner. For Bradshaw, hunting and trapping are important. “I love being in the outdoors with family and friends, and for the learning and adventure of each trip,” said Bradshaw. “These are things that cannot be bought. I love to care for the land and animals so that future generations can also enjoy them. I also love the challenge of becoming a better hunter and trapper by learning each species of animal and becoming more knowledgeable of the details and habits of each animal that I am hunting or trapping. If it has a season, we enjoy harvesting it!” —*photograph by David Stonner*